



PATENT APPLICATION

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Jeffrey D. Myers, Reg. No. 35,964

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Peter K. Olmsted	:	Examiner: Shah, Kamini S.
Serial No. 10/629,411	:	Group Art Unit: 2142
Filed: July 29, 2003	:	
For: SIMPLIFIED CONSTRUCTION SITE LAYOUT	:	
METHOD AND APPARATUS	:	

DECLARATION OF PETER K. OLMSTED UNDER 37 C.F.R. §§ 1.68 and 1.131

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

Peter K. Olmsted declares as follows:

1. I am the inventor of the subject matter of the above-identified patent application.
2. The method and software of my invention was actually reduced to practice prior to February 2, 2002. Unfortunately, software versions from that period were not kept, but did exist.
3. Attached as Exhibit A to this Declaration is a copy of a facsimile from Martha West to myself dated prior to February 7, 2002 (redacted), which contains comments and calculations regarding

my Simplified Construction Site Layout invention. As indicated by this fax, my invention was reduced to practice as a method prior to February 7, 2002.

4. Attached as Exhibit B to this Declaration is a copy of a facsimile from Martha West to myself dated prior to February 7, 2002. This fax also shows that my claimed method was reduced to practice before February 7, 2002, and that a computer program, implementing my invention was being programmed accordingly during that time.

5. Exhibits A and B together certainly disclose every element of my claimed invention. The following is a table which contains every element of my claimed invention and points out where evidence can be found of the reduction to practice of each and every element of my independent claims 1 and 7.


Claim 1	Location of support.
"providing at least two batter points away from a boundary of the building, wherein the boundary comprises at least one line connecting at least two measurement points of the building"	Page 4 of Exhibit B
"calculating distances between the at least two measurement points and the at least two batter points"	Pages 2 and 3 of Exhibit A
"triangulating a location of the at least two measurement points"	Pages 2 and 3 of Exhibit A

Claim 7	Location of support.
"receiving building element data"	Page 2 of Exhibit B
"determining relative positions of at least two measurement points derived from the building element data"	Pages 2 and 3 of Exhibit A
"calculating distances between the at least two measurement points and at least two batter points located away from all of the at least two measurement points"	Pages 2 and 3 of Exhibit A
"providing the calculated distances"	Pages 2 and 3 of Exhibit A

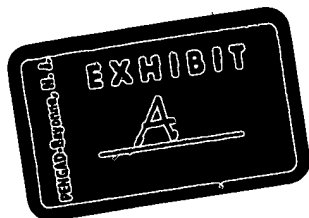
6. Martha West prior to February 7, 2004, implemented the method of the invention into computer software. Accordingly, the invention of my claim 13 was also actually reduced to practice prior to February 7, 2004.

7. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the above-referenced application or any patent issuing thereon.

Date: 1/27/05


Peter K. Olmsted

G:\AMDS\Construction Software - DCL.doc



Fax # 505.438.0227
4/19/01

Pete,

I think we were seeing the same thing at conversations end. I have also included my derivation for getting what I need to draw the arc. I assume I know relative position of the circle center (e.g. inside or outside structure as one way to (maybe) say this unambiguously.)

Have	Need for graphics	name in derivation
$X_{dis} \equiv x \text{ displacement}$ $Y_{dis} \equiv y$ radius (relative position of center) initial position	1) center coordinates ✓ ↳ (x_{center}, y_{center}) 2) radius (have) (radius) 3) start angle ✓ (ϕ) 4) sweep angle ✓ ($2\theta_c$)	

(This is what C++
function call needs)
(AngleArc)

✓ \equiv derivation provides these. May be some sign errors that I will catch when I program the test. It is close--

Input

$$\text{dist}[n] = \text{root} + (\text{inch} + \text{num_inch} / \text{den_inch}) / 12;$$

$$\text{angle}[n] = \text{angle};$$

output 1, 2, 3

Assumed Counter Clockwise (may also be here) (may also be general)

general case 1:

```
if (n == 0)
{
  x[n] = 0;
  y[n] = 0;
}
```

}

else

```
{ x[n] = x[n-1] + cos(angle[n]) * dist[n];
```

```
  y[n] = y[n-1] + sin(angle[n]) * dist[n];
```

}

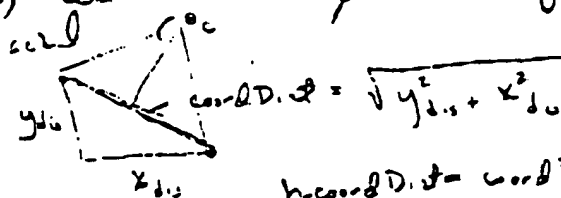
// for circle - x-dis, y-dis given correct sign to use
case 2:

```
x[n] = x[n-1] + x-displacement;
```

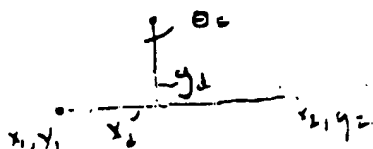
```
y[n] = y[n-1] + y-displacement;
```

for angular points.

- 1) Determine center x_c, y_c if coord horizontal
- 2) Rotate center to correct position
- 3) determine initial ϕ (start angle)



like radius



NOTE $x_2 \neq x_{dis}$
 $y_2 \neq y_{dis}$
 unforhaste similarity

$$\text{hcoord D.ist} = \text{coord D.ist} / 2;$$

$$(\sin \theta_c) = \frac{\text{hcoord D.ist}}{\text{radius}} = \text{hchRatio};$$

$$\theta_c = \arcsin(\text{hchRatio});$$

$$x_{dis} = \sin \theta_c \cdot \text{radius};$$

$$y_{dis} = \cos \theta_c \cdot \text{radius};$$

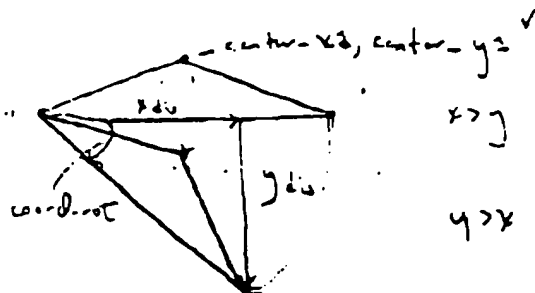
$$\text{center-}x_2 = x_1 + x_{dis};$$

$$\text{center-}y_2 = y_1 + y_{dis};$$

$x_{dis} \cdot x_{dis} =$
 $y_{dis} \cdot y_{dis} =$
 $x_{dis} \cdot y_{dis} =$

Angle Arc is
 C++ func

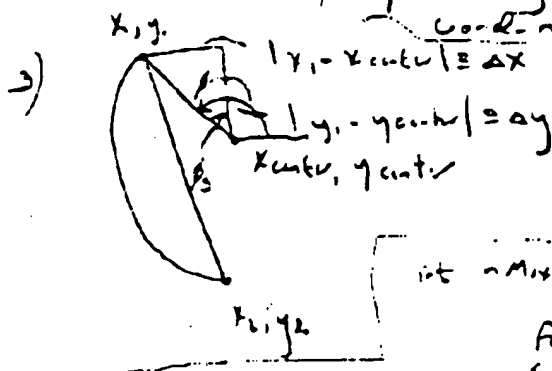
- 2) a) determine coord-rot ϕ



$$x > y \quad \cos(\text{coord-rot}) = \frac{x_{dis}}{\sqrt{x_{dis}^2 + y_{dis}^2}} \Rightarrow \text{coord-rot}$$

$$y > x \quad \sin(\text{coord-rot}) = \frac{y_{dis}}{\sqrt{x_{dis}^2 + y_{dis}^2}}$$

Obtain x_{center}, y_{center} by rotating center x_1, y_1 through



$$\cos \phi = \frac{\Delta x}{\sqrt{\Delta x^2 + \Delta y^2}}$$

$$\phi = \arccos\left(\frac{\Delta x}{\sqrt{\Delta x^2 + \Delta y^2}}\right)$$

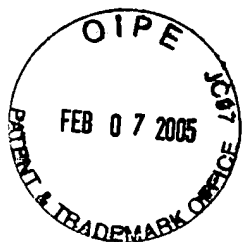
if $x_1 > x_{center}$
 $\phi = 90^\circ + \phi_2$
 else
 $\phi = 90^\circ - \phi_2$

$$\text{rot} = nMix = 2\theta_c \times 100; // 100 \text{ (deg) } \phi_{grad}$$

$$n = (n \neq 0; n \leq nMix; \text{rot})$$

$$\{ x = x_{center} + \text{radius} \times \cos(\phi + n/100);$$

$$y = y_{center} + \text{radius} \times \sin(\phi + n/100);$$



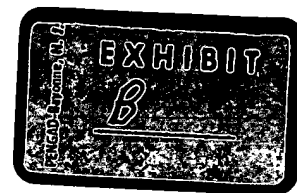
TO: Peter Olmsted Fax #: 505 438 0227

FROM: Martha West

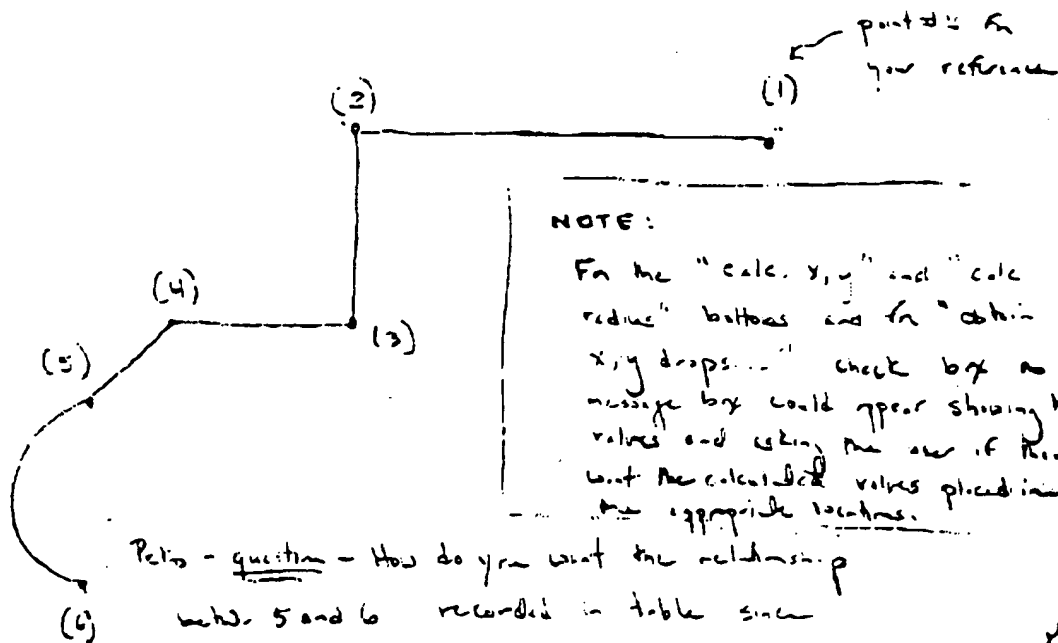
DATE: 4/25/01

pages: 5 including cover

I got you fax. There are 3 curved walls. 2 seem to have chord & radius (although not shown to scale) but the one in upper left doesn't have the necessary info it seems. The intended function will make the point numbering trickier. I will think about it.



BUILD-RETE TOOLS - BUILDING LAYOUT MADE SIMPLE



Pets - question - How do you want the relationship between 5 and 6 recorded in table since breaks pattern of angle/distance.

notes to 'destination point' - 2 middle differently (probably) check boxes

use bottom scroll to see with a continuous scroll bar

push buttons
↓

Type

☐ point-to-point ☐ angle ☐ distance ☐ radius ☐ x-drop ☐ y-drop ☐ calc x, y

check box ☐ obtain x, y drops relative to pt ☐

☐ point-to-boundary ☐ angle ☐ radius ☐ center ☐ in out ☐ rotation ☐ buttons

☐ point-arc-point ☐ x-drop ☐ y-drop ☐ calc x, y

radius ☐ center ☐ in out ☐ rotation ☐ buttons

☐ Close

INPUT UNDO LAST RENUMBER

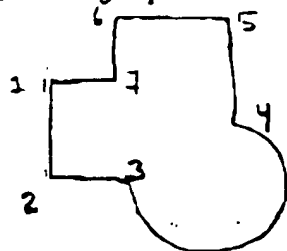
POSITION BATTER POINTS

pt #	ANGLE	DISTANCE
2	0	30 ft
3	-90	12 ft
4	0	10 ft
5	-135	4 ft
6	(see question 20000)	

This GUI (Graphical User Interface) may look complicated but it is cluttered with a lot of notes and comments and it is not as aligned as it will be on the computer. Also when the user selects a TYPE all other input option will be grayed out (e.g. still somewhat visible but less in your face). We can always simplify as well.

Using reverse direction: In this instance because user doesn't know x, y drops for an arc. (Refer to drawing below.)

User inputs information for pts 1 through 3. Then the program will automatically increment to point 4 (this is always true...user does not have to fill in this box unless they want to do something a little different, as is the case here). Since the user now wants to come back around the other way he/she overwrites the 4 with 7 and proceeds to provide data to get from 1 to 7. When he/she pushes the "INPUT" button to submit the data, the program will see that the point number is not 4 as expected but 7. It will then come back with a message box saying something like "Connect points 1 and 7 and proceeding in the opposite direction so point #'s should decrement?". (Note that the user may not want this at all. Perhaps they just got a little over eager and decided to increment the point number even though the computer had already done it. This may result in having the numbers out of order (greater) say by just one. If they push cancel they will then be told what number to input to remain sequential and be reminded that they don't need to change the number if they are just going around in one direction.) After pushing okay to "Connect points 1 and 7..." the user will continue as before but the numbers that will appear next will be 6, 5, 4... If we trusted the user to provide the right start number (in this case 7) then the program would know that when it gets to 4 it is time to calculate the x, y drops. But the user may not have done this correctly or perhaps the user wants to do something else like a close to 3. Therefore the user needs to check "obtain x, y drops relative to pt 3" before they push INPUT when working on point 4 (where the user provides the 3 - again it is the most likely thing but he/she may want something else for some reason or if they are out of sequence this will avoid any ambiguity). Another box will come back with the x, y drop values with the option to insert them into the "point-arc-point" data entry option. Then this data option will become visible and the point-to-point will be grayed and he/she can then provide the rest of the arc info. If the user did mess up going backwards so that the final arc point is (say) 5 not 4 the program will allow the structure to close but will then tell the user the numbers are not sequential and ask if it can make the obvious correction e.g. replace 5 with 4 and go from there.



I just added the INPUT, UNDO LAST, RENUMBER and POSITION BATTER POINTS buttons. This may not be the best place for them. They could for example also go in a line along the very top or at the top of the data entry section (above the line with Type and Pt # or even in that line).

INPUT must be pressed after each data entry.

UNDO LAST would for example retrieve the data for point 4 after the user has already gone on and point 5 (with no data) had appeared. It would show the previous data for point 4 since in all likelihood everything is fine in that input except for one data entry so why put everything back in?

RENUMBER would pop up another screen (not too big) with likely several options but the primary one would be to provide the new start point say the old point 7 and whether you wanted to go ccw or cw. If the foundation has not yet closed when the user asks to renumber, he/she will be asked to close first.

POSITION BATTER POINTS assumes you are complete and ready to go to the next screen where the drawing would be re-drawn perhaps along with the list of points and data as shown in lower right. If the foundation had not yet closed when POSITION BATTER POINTS is pressed the user will be asked if this is really what they want to do given the unclosed state of the structure. (Are there any instances when you wouldn't want to close your foundation? This could also have bearing on RENUMBER above.) The BATTER POINT screen would ask for the wall and parallel displacement from the wall and in or out displacements for points A and B if there are any (we already agreed I think that the program will assume that the batter points should be located at the projections to the line of furthest points in the structure ...hard to say).

I just remembered that we will also need the option to change just one point and shift all the affected points without changing their input information. Perhaps this could be called CHANGE INTERNAL POINT, but I am sure there is something better.

Maybe only INPUT and POSITION BATTER POINTS should be buttons and the rest of the additional options discussed above should be in a drop down menu under OPTIONS or something.

If the user really messed up and they want to go back up several points and reenter everything then they just input the point number they are reversing to and the desired data. The program will start incrementing again from there with no additional functionality. It should however ask the user if they are intending to overwrite the data from that point onward. They may have again tried to input the numbers themselves and gotten mixed up decreasing the number this time instead of incrementing it. They should therefore be notified about the consequences of their choice and be allowed to reverse it.

Finally these are the Web sites you need to look at. I don't want Elsi to think we aren't interested and you need to give some feedback. I will give you 3 sites. One that Elsi made and the other two that her son's made. If you especially like something from one of her son's web pages, know that all the expertise will be available to you.

Elsi Vacano: <http://biogol.ushsc.edu> then in the left hand column (Navigation) select faculty. This is the piece of this website that Elsi did. Note that there are also a number of links in each of the faculty links. Some of the faculty pictures aren't there because she hasn't been given the pictures yet. Notice the attention to editing details.

Her sons also do great websites. Chris is actually a professional graphic artist. I am amazed by his range. I think you will be too. Since Chris is not here in Denver (both Guido and Elsi work for the Univ. of Colorado Health Sciences Center where I used to work), his role will be mainly at the level of consultant.

Chris Vacano: <http://www.vacano.com>
Guido Vacano: <http://eri.uchsc.edu>

Now that I am ready to fax, I can go get your fax.

p.s. If Leslie didn't get Fran Shure's phone number, let me know. I used my cell phone and sometimes I can't tell if it is still connected when I talk to answering machines. I would just give it to you here but it is at home.

Also I have a HUGE deadline coming up in the middle of May. I probably should focus on that at least until I know that I will be able to get it done. Darn...I really want to just work on this. I still should have time in the next two weeks to get the graphics commands to work which will be a big step towards conquering the "unknowns" of the project. Also I will likely meet with Elsi this Sunday. I hope you will look at the websites so I can tell her honestly what you think... otherwise I will have to tell her what I think you will say which is that she and her family are web masters!

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